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Test 1227: Ford 5600 Diesel 16-Speed

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NEBRASKA TRACTOR TEST 1227 — FORD 5600 DIESEL, 16-SPEED

POWER TAKE-OFF PERFORMANCE

Power Hp (kW)	Crank shaft speed rpm	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temperature °F (°C) Cooling medium	Air wet bulb	Air dry bulb	Barometer inch Hg (kPa)
MAXIMUM POWER AND FUEL CONSUMPTION								
Rated Engine Speed—Two Hours (PTO Speed—597 rpm)								
58.46 (43.59)	2101	3.988 (15.098)	0.478 (0.290)	14.66 (2.887)	197 (91.7)	58 (14.3)	75 (24.0)	28.987 (97.884)
Standard Power Take-off Speed (540 rpm)—One Hour								
56.00 (41.76)	1901	3.719 (14.078)	0.465 (0.283)	15.06 (2.966)	200 (93.5)	57 (13.8)	75 (23.8)	28.995 (97.912)
VARYING POWER AND FUEL CONSUMPTION—Two Hours								
52.62 (39.24)	2225	3.626 (13.727)	0.482 (0.293)	14.51 (2.859)	186 (85.8)	58 (14.2)	76 (24.4)	....
0.00 (0.00)	2340	1.290 (4.884)	....	....	172 (77.8)	57 (13.9)	76 (24.4)	....
27.06 (20.18)	2289	2.396 (9.070)	0.620 (0.377)	11.29 (2.225)	174 (78.9)	57 (13.9)	76 (24.4)	....
58.82 (43.86)	2100	3.999 (15.138)	0.476 (0.289)	14.71 (2.897)	196 (90.8)	57 (13.9)	76 (24.4)	....
13.69 (10.21)	2312	1.817 (6.880)	0.929 (0.565)	7.53 (1.484)	172 (77.5)	57 (13.9)	76 (24.4)	....
40.14 (29.93)	2264	2.979 (11.277)	0.519 (0.316)	13.47 (2.654)	178 (81.4)	57 (13.9)	76 (24.2)	....
Av 32.05	**2255**	**2.685**	**0.586**	**11.94**	**180**	**57**	**76**	**28.987**
Av (23.90)		***(10.163)***	***(0.357)***	***(2.352)***	***(82.0)***	***(13.9)***	***(24.4)***	***(97.884)***

DRAWBAR PERFORMANCE

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank-shaft speed rpm	Slip %	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temp. °F (°C) Cool-ing med	Air wet bulb	Air dry bulb	Barom. inch Hg (kPa)
Maximum Available Power—Two Hours 8th (5PD) Gear											
47.86 (35.69)	4246 (18.89)	4.23 (6.80)	2102	7.59	3.965 (15.009)	0.580 (0.353)	12.07 (2.378)	196 (90.8)	62 (16.7)	79 (25.8)	28.575 (96.493)
75% of Pull at Maximum Power—Ten Hours 8th (5PD) Gear											
40.94 (30.53)	3276 (14.57)	4.69 (7.54)	2282	5.63	3.429 (12.980)	0.586 (0.357)	11.94 (2.352)	165 (73.9)	41 (4.8)	50 (9.7)	29.019 (97.993)
50% of Pull at Maximum Power—Two Hours 8th (5PD) Gear											
28.12 (20.96)	2195 (9.76)	4.80 (7.73)	2291	3.63	2.697 (10.209)	0.671 (0.408)	10.42 (2.054)	168 (75.6)	63 (17.2)	81 (27.2)	28.545 (96.392)
50% of Pull at Reduced Engine Speed—Two Hours 12th (6DD) Gear											
28.12 (20.97)	2196 (9.77)	4.80 (7.73)	1432	3.97	2.286 (8.654)	0.569 (0.346)	12.30 (2.424)	161 (71.7)	36 (2.2)	36 (2.2)	28.985 (97.878)
MAXIMUM POWER IN SELECTED GEARS											
36.41 (27.15)	7140 (31.76)	1.91 (3.08)	2300	14.85	4th (2DD) Gear			166 (74.4)	34 (1.1)	35 (1.7)	29.100 (98.266)
47.56 (35.47)	5159 (22.95)	3.46 (5.56)	2099	9.31	7th (4PD) Gear			184 (84.4)	56 (13.3)	66 (18.9)	28.620 (96.645)
49.00 (36.54)	4353 (19.36)	4.22 (6.79)	2101	7.81	8th (5PD) Gear			180 (82.2)	54 (12.2)	63 (17.2)	28.630 (96.679)
49.79 (37.13)	3480 (15.48)	5.36 (8.64)	2099	5.93	10th (6PD) Gear			186 (85.3)	58 (14.4)	70 (21.1)	28.610 (96.612)
48.60 (36.24)	2601 (11.57)	7.01 (11.28)	2097	4.39	12th (6DD) Gear			185 (85.0)	60 (15.6)	74 (23.3)	28.600 (96.578)
43.85 (32.70)	1306 (5.81)	12.60 (20.27)	2099	2.01	14th (7DD) Gear			183 (83.9)	61 (16.1)	76 (24.4)	28.590 (96.544)

LUGGING ABILITY IN RATED GEAR (8th (5PD))

Crankshaft Speed rpm	2101	1882	1675	1469	1263	1056
Pull—lbs (kN)	4353 (19.36)	4639 (20.64)	4839 (21.52)	4885 (21.73)	4886 (21.73)	4859 (21.61)
Increase in Pull %	0	7	11	12	12	12
Power—Hp (kW)	49.00 (36.54)	46.50 (34.67)	43.00 (32.06)	37.98 (28.32)	32.69 (24.37)	27.15 (20.25)
Speed—Mph (km/h)	4.22 (6.79)	3.76 (6.05)	3.33 (5.36)	2.92 (4.69)	2.51 (4.04)	2.10 (3.37)
Slip %	7.81	8.19	8.57	8.57	8.69	8.69

Department of Agricultural Engineering

Dates of Test: October 5 to 20, 1976

Manufacturer: FORD MOTOR COMPANY, Tractor Operations, 2500 East Maple Rd., Troy, Michigan 48084

FUEL, OIL AND TIME: Fuel No. 2 Diesel **Cetane No.** 51.8 (rating taken from oil company's typical inspection data) **Specific gravity converted to 60°/60° *(15.6°/15.6°)*** 0.8406 **Fuel weight** 6.999 lbs/gal *(0.841 kg/l)* **Oil SAE** 30 **API service classification** SB/SE-CA/CD **To motor** 2.665 gal *(10.088 l)* **Drained from motor** 1.612 gal *(6.102 l)* **Transmission and final drive lubricant** Ford M-2C53A **Total time engine was operated** 45.5 hours.

ENGINE Make Ford Diesel **Type** 4 cylinder vertical **Serial No.** *L069298* **Crankshaft** lengthwise **Rated rpm** 2100 **Bore and stroke** 4.2″ × 4.2″ *(106.68 mm × 106.68 mm)* **Compression ratio** 16.3 to 1 **Displacement** 233 cu in *(3814 ml)* **Cranking system** 12 volt **Oil filter** full flow cotton blend spin-on cartridge **Oil cooler** radiator for transmission and hydraulic oil **Fuel filter** nylon gauze in bottom of tank and paper element **Muffler** vertical **Cooling medium temperature control** thermostat

CHASSIS: Type standard **Serial No.** *C510281* **Tread width** rear 56″ *(1420 mm)* to 80″ *(2030 mm)* front 52″ *(1320 mm)* to 80″ *(2030 mm)* **Wheel base** 87.5″ *(2222 mm)* **Center of gravity** (without operator or ballast, with minimum tread, with fuel tank filled and tractor serviced for operation) Horizontal distance forward from centerline of rear wheels 27.5″ *(699 mm)* Vertical distance above roadway 40.0″ *(1016 mm)* Horizontal distance from center of rear wheel tread 0.3″ *(8 mm)* to the right **Hydraulic control system** direct engine drive **Transmission** selective gear fixed ratio with partial (2 range) operator controlled power shift **Advertised speeds mph *(km/h)*** first 1.2 *(1.9)* second 1.4 *(2.2)* third 1.5 *(2.4)* fourth 1.9 *(3.0)* fifth 2.6 *(4.1)* sixth 3.3 *(5.3)* seventh 3.5 *(5.6)* eighth 4.2 *(6.7)* ninth 4.5 *(7.2)* tenth 5.2 *(8.4)* eleventh 5.4 *(8.7)* twelfth 6.7 *(10.8)* thirteenth 9.2 *(14.8)* fourteenth 11.8 *(19.0)* fifteenth 12.5 *(20.1)* sixteenth 16.1 *(26.8)* reverse 1.7 *(2.7)*, 2.2 *(3.5)*, 6.0 *(9.6)*, 7.7 *(12.5)* **Clutch** single plate dry disc operated by foot pedal **Brakes** wet multiple disc operated by two foot pedals which can be locked together **Steering** power assist **Turning radius** (on concrete surface with brake applied) right 120″ *(3.05 m)* left 120″ *(3.05 m)* (on concrete surface without brake) right 138″ *(3.51 m)* left 138″ *(3.51 m)* **Turning space diameter** (on concrete surface with brake applied) right 252″ *(6.40 m)* left 252″ *(6.40 m)* (on concrete surface without brake) right 291″ *(7.39 m)* left 291″ *(7.39 m)* **Belt pulley** 1072 rpm at 2050 engine rpm diameter 11″ *(279 mm)* face 6.5″ *(165 mm)* **Belt speed** 3087 fpm *(15.7 m/s)* **Power take-off** 540 rpm at 1901 engine rpm.

REPAIRS and ADJUSTMENTS: No repairs or adjustments.

TRACTOR SOUND LEVEL WITH CAB	dB(A)
Maximum Available Power—Two Hours	82.5
75% of Pull at Maximum Power—Ten Hours	83.5
50% of Pull at Maximum Power—Two Hours	84.5
50% of Pull at Reduced Engine Speed—Two Hours	80.5
Bystander in 16th (8DD) gear	88.0

TIRES, BALLAST AND WEIGHT		With Ballast	Without Ballast
Rear Tires	—No., size, ply & psi *(kPa)*	Two 18.4-30; 6; 16 *(110)*	Two 18.4-30; 6; 16 *(110)*
Ballast	—Liquid (each)	810 lb *(367 kg)*	None
	—Cast Iron (each)	300 lb *(136 kg)*	None
Front Tires	—No., size, ply & psi *(kPa)*	Two 7.50-16; 6; 40 *(280)*	Two 7.50-16; 6; 40 *(280)*
Ballast	—Liquid (each)	None	None
	—Cast Iron (each)	80 lb *(36 kg)*	None
Height of drawbar		22.5 in *(570 mm)*	22.5 in *(570 mm)*
Static weight with operator—rear		7230 lb *(3279 kg)*	5010 lb *(2273 kg)*
front		2460 lb *(1116 kg)*	2300 lb *(1043 kg)*
total		9690 lb *(4395 kg)*	7310 lb *(3316 kg)*

REMARKS: All test results were determined from observed data obtained in accordance with SAE and ASAE test code or official Nebraska test procedure. Temperature at injection pump return was 157°F *(69.4°C)*. Six gears were chosen between 15% slip and 15 mph *(24.1 km/h)*. Scratches on all cylinders and slight scoring on cylinder No. 4 were found during final inspection.

We, the undersigned, certify that this is a true and correct report of official Tractor Test **1227.**

LOUIS I. LEVITICUS
Engineer-in Charge

G. W. STEINBRUEGGE, Chairman
W. E. SPLINTER
K. VON BARGEN
Board of Tractor Test Engineers

Ford 5600 Diesel

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